

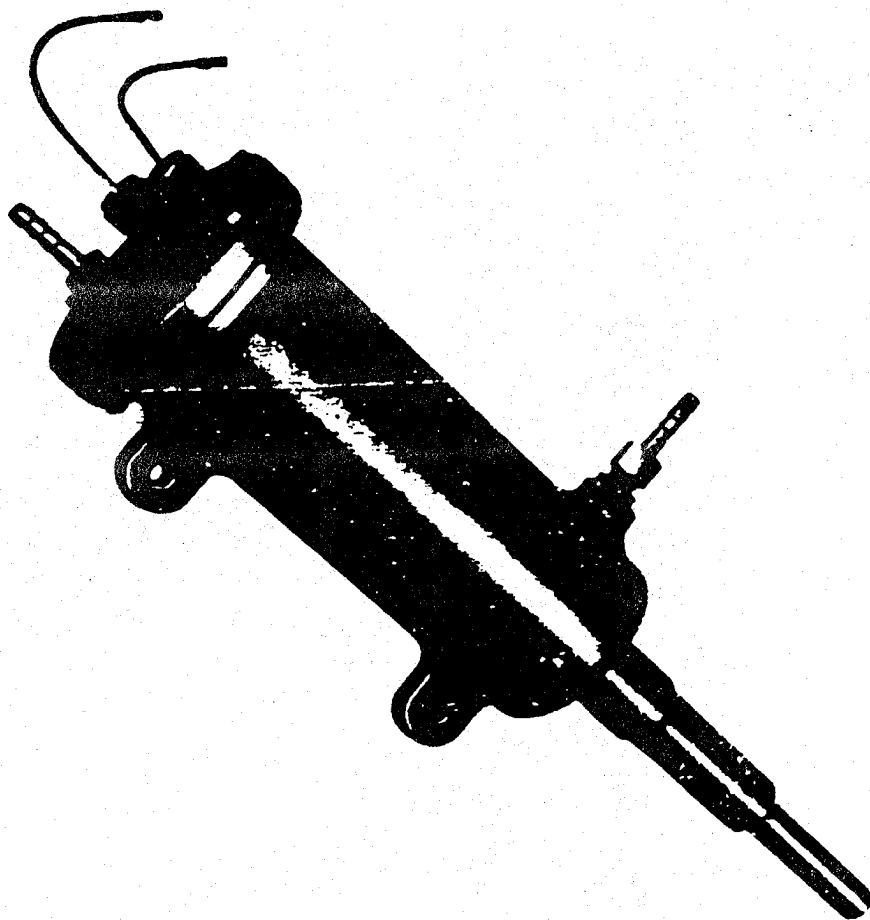


ULTRASONIC EQUIPMENT

HIGH POWER TRANSDUCER TYPE WT 10

Many applications of ultrasonic energy in industry and research require a high intensity transducer capable of being continuously operated for long periods. Important applications are found in chemistry, biology, pharmacology and metallurgy.

Uses of high power ultrasonic energy include disruption of cells, homogenisation of cell components, fragmentation of tissue, stimulation or inhibition of bacterial activity, acceleration of chemical reactions, dispersion of solids in liquids, degassing of molten metal, production of metal powders.



Equipment

The transducer unit embodies a high efficiency magnetostriction transducer mounted in a light alloy water jacket. A stepped coupling stub forms the first stage of mechanical amplification, and further stages of amplitude step-up are added in the form of applicator probes. Mounting lugs are provided on the water jacket for securing the unit to a stand or machine frame and standard hose connections are fitted for cooling water inlet and outlet.

The active face diameter of the applicator probe will depend on the amplification required, but will have a maximum of 1.5".

The input power may be either 600 watts or 1 kW, depending on the choice of generator. An applicator probe with a 4:1 amplification factor and a 1" diameter active face provides a power dissipation of 1 kW/in² and 1.6 kW/in² respectively.

The solid state generator utilizes a silicon controlled rectifier in a relaxation oscillator inverter circuit and incorporates automatic frequency tracking to eliminate the need for tuning.

Technical specification

TRANSDUCER UNIT TYPE WT10

Nickel alloy magnetostriction transducer in light alloy water jacket. Stepped stub nodally mounted for first stage amplification, with low acoustic loss mounting. Stub provided with threaded hole for securing applicator probe. Electrical connections brought out through watertight glands to terminal block. Hose connectors for cooling water at top and side of jacket. Mounting lugs on housing.

Electrical input: 600 Watts or 1 kW at nominal 19 kHz frequency.
Water supply: 0.5 g.p.m.
Applicator Probe Mounting: 0.5" B.S.F. threaded hole.
Mounting lugs: 0.5" diameter fixing holes spaced 5.5" centres.
Overall size: 10" high, 3" diameter across jacket, 4" diameter across flange.
Weight: 9 lbs.

GENERATOR

Standard Radyne generators may be used to provide input power to the transducer.

Typical units are:

Type USG6/C

Output power: 600 Watts average power, at nominal 19 kHz frequency. With internally mounted matching circuit and automatic frequency tracking.
Electrical input: 200-250 Volts, 50 Hz, single phase 1.0 kVA. Other voltages and frequencies can be supplied to special order.
Size: 17" x 14" x 8" high.
Weight: 52 lbs.

Type USG10/C

Output power: 1 kW average power, at nominal 19 kHz frequency. With internally mounted matching circuit and automatic frequency tracking.
Electrical input: 200-250 Volts, 50 Hz, single phase, 1.4 kVA. Other voltages can be supplied to special order.
Size: 24" x 14" x 8" high.
Weight: 90 lbs.

MULTIPLE UNITS

When more than one high intensity transducer is required, the Radyne module generator system allows a compact power source to be used. Type USG20/C provides two outputs and the Type USG40/C provides four outputs, each of 1 kW rating.

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GUARANTEE AND CONDITIONS OF SALE

The components excepting semi-conductor devices, lamps and other consumables used in Radyne standard equipment are guaranteed against faulty workmanship or material for twelve months from the date of delivery, and will be replaced if found to be faulty within that period, providing that any transducer assembly is not allowed to exceed 300°F. Semi-conductor devices are subject to the manufacturers' own terms. Thereafter it is assumed that the user will maintain or replace them

when required. Radyne Limited accept no responsibility for failures due to causes beyond their control such as accident or misuse. Consequential liability of any kind, including use of equipment for patented processes, is specifically excluded. Radyne Limited have a policy of continued improvement and reserve the right to alter prices or specifications at any time without notice. For full details of guarantee see Radyne Standard Conditions of Sale.

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